

4.14 UTILITIES, SERVICE SYSTEMS, AND ENERGY

4.14.1 Introduction

This section describes existing utilities, service systems, and energy resources serving the RBC site and evaluates the potential for development under the 2014 LRDP to affect these systems.

Public and agency NOP comments related to utilities, service systems, and energy are summarized below:

- The EIR should analyze RBC dry and wet weather flows on the City of Richmond's wastewater collection and treatment systems.
- The EIR should analyze RBC development demand impacts on the City of Richmond's water, natural gas, and telecommunications infrastructure.
- The EIR should analyze the impacts of the RBC development on stormwater runoff.
- The EIR should determine if stormwater runoff would be discharged into the City of Richmond's drainage system and whether the RBC site would need to comply with State Water Resources Control Board requirements.
- For potentially significant impacts, the EIR should identify mitigation measures that promote sustainability and conservation of resources.
- The EIR should describe all project waste streams associated and identify how waste would be handled.
- The project sponsor should submit a written request to EBMUD to prepare an RBC development Water Supply Assessment (WSA).
- Off-site water pipeline improvements, including existing water main replacements, may be necessary to provide RBC site water.
- The RBC development should use non-potable water, including recycled water, for non-domestic purposes. The nearest EBMUD recycled water transmission pipeline terminates approximately 3 miles from the project site.
- The RBC development should incorporate WaterSmart technology and design standards in landscape and building design.

All these comments were considered in the analysis.

4.14.2 Environmental Setting

Water

EBMUD provides the RBC site with water service for potable, firefighting, central plant, and irrigation uses. The District's water supply system consists of a network of reservoirs, aqueducts, treatment plants, and distribution facilities. The water supply system originates at the Mokelumne River in the Sierra Nevada mountain range; that water is delivered to treatment plants or to District reservoirs, and ultimately to East Bay residences and businesses. On average, 90 percent of the water delivered by EBMUD comes from the Mokelumne River watershed, with the remaining 10 percent originating as runoff from local service area watersheds. EBMUD is entitled to 325 million gallons per day (mgd) of Mokelumne watershed water, of which 200 mgd is diverted from the Pardee Reservoir and 125 mgd is diverted from the Camanche Reservoir (EBMUD 2012).

EBMUD Water supplied to the City of Richmond is treated at the Sobrante Water Treatment Plant (WTP) or the Orinda WTP. The Sobrante WTP can treat and deliver up to 60 mgd and the Orinda WTP can treat and deliver up to 200 mgd (City of Richmond 2011).

The RBC site is currently served by three 8-inch laterals, each connected to 12-inch EBMUD water mains in South 46th Street, Regatta Boulevard and South 32nd Street, and Regatta Boulevard and South 34th Street. Currently, land uses on the RBC site consume approximately 11 million gallons per year (mgy), with an estimated maximum flow rate of 50 gpm (City of Richmond 2011).

Wastewater

The Richmond Municipal Sewer District (RMSD) provides wastewater services to the RBC site. Wastewater is treated at the RMSD's WWTP on the Point Richmond Peninsula. The RMSD WWTP has a dry-weather secondary treatment capacity of 24 mgd, and wet weather capacity of 24 mgd primary/secondary treatment and 40 mgd of primary treatment. The RMSD WWTP receives approximately 7 mgd dry weather influent flows. Wet weather flows peak at 56 mgd due to infiltration and inflow, approximately 16 mgd more than the RMSD WWTP's primary treatment capacity (US DOI and City of Richmond 2009).

The RBC site currently connects to a City of Richmond sanitary sewer main in several locations in the north portion of the developed area and to a southern City of Richmond sewer main that traverses the southern end of the meadow to the west of the EPA Lab and then exits the site to South 32nd Street. Currently, land uses on the RBC site discharge approximately 9.3 mgy into the City's sewer system for treatment at the RMSD WWTP.

Stormwater

Stormwater currently flows from north to south on the RBC upland area through open swales, culverts, and sheet flow into drainages. Building and other impervious surface runoff is directed into storm drains. There are two main RBC site storm drain lines: the Western and Eastern Storm Drains. Stormwater in the western RBC uplands drains through the Western Storm Drain's open swales and an underground pipe to a trapezoidal storm drain channel called Meeker Ditch. This drain channel runs north-south on the western edge of the uplands; it also carries City of Richmond stormwater collected north of the RBC site. The Eastern Storm Drain also discharges its surface waters into Meeker Ditch. Runoff from the buildings and other impervious surfaces on the Regatta property is directed into storm drains in the adjacent streets.

Solid Waste

The West Contra Costa Integrated Waste Management Authority (WCCIWMA) is the joint powers agency that manages solid waste for the cities of El Cerrito, Hercules, Pinole, Richmond, and San Pablo—an area of approximately 74 square miles. The WCCIWMA is governed by a board of Directors made up of seven city council members. The WCCIWMA was created in response to Assembly Bill 939, which mandated California cities to reduce solid waste by 50 percent by the year 2000. West Contra Costa County met the 50 percent waste diversion goal in 2006 (WCCIWMA 2012).

The project site is in the Richmond Sanitary Service collection district. Refuse is collected and taken to the Golden Bear Transfer Station, from where it is transported to the Potrero Hills Landfill in Solano County (Contra Costa County 2003). The WCCIWMA uses other landfills such as those listed in Table 4.14-1.

Table 4.14-1
Disposal Facilities Used by WCCIWMA in 2008

Facility	Address	Expected Closure Date	Permitted Maximum Disposal (Tons/Day)	Remaining Estimated Capacity (cubic yards)
Acme Landfill	950 Waterbird Way, Martinez CA 94553	6/1/2021	1,500	175,000 (65.1%)
Altamont Landfill and Resources Recovery	10840 Altamont Pass Road Livermore CA 94550	1/1/2029	11,500	45,720,000 (73.7%)
Bakersfield Metropolitan (Bena) SLF	2951 Neumarkel Road Caliente CA 93518	12/31/2038	4,500	34,994,127 (66.0%)
Corinda Los Trancos (Ox Mountain) Landfill	2 miles NE Half Moon Bay off Hwy 92, Half Moon Bay CA 94019	1/1/2018	3,598	44,646,148 (117.8%)*
Forward Landfill, Inc.	9999 S. Austin Road Manteca CA 95336	1/1/2020	8,668	23,700,000 (46.4%)
Guadalupe Sanitary Landfill	15999 Guadalupe Mines Road San Jose CA 95120	1/1/2048	1,300	11,055,000 (38.7%)
John Smith Road Class III Landfill	2650 John Smith Road Hollister CA 94123	1/1/2024	500	3,594,899 (77.7%)
Keller Canyon Landfill	901 Bailey Road Pittsburg CA 94565	12/31/2030	3,500	63,408,410 (84.5%)
Newby Island Sanitary Landfill	1601 Dixon Landing Road Milpitas CA 95035	6/1/2025	4,000	18,274,953 (36%)
Potrero Hills Landfill	3675 Potrero Land Suisun City CA 94585	2/14/2048	4,330	13,872,000 (16.7%)
Recology Hay Road Landfill, Inc.	6426 Hay Road; 1/4 Mi W Hwy 113, Vacaville CA 95687	1/1/2077	2,400	30,433,000 (82.3%)
Recology Ostrom Road Landfill	5900 Ostrom Road Wheatland CA 95692	12/31/2066	3,000	39,223,000 (90.2%)
Redwood Sanitary Landfill	4 miles NE Novato Btwn Santonio and RR Novato, CA 94945	1/1/2039	2,300	12,900,000 (67.5%)
Vasco Road Sanitary Landfill	4001 North Vasco Road Livermore CA 94550	8/31/2019	2,250	9,870,704 (30.0%)
Zanker Material Processing Facility	675 Los Esteros Road San Jose CA 95134	12/31/2018	350	540,100 (100%)

* Calrecycle website shows -6,746,148 cubic yards used, which results in a remaining capacity greater than 100%.

% Percent

SLF Sanitary Landfill

Source: CIWMB, 2009. <http://www.calrecycle.ca.gov/SWFacilities/Directory/search.aspx>. Accessed January 31, 2013

Potrero Hills Landfill receives the majority of the transfer station solid waste. It is at 3675 Potrero Hills Lane in Suisun City, approximately 28 miles northeast of the RBC site. According to CalRecycle, the landfill currently has a permitted capacity of 83.1 million cubic yards and a permitted daily intake limit of 4,330 tons. The landfill is permitted by the Local Enforcement Agency to continue operating till 2048 (CalRecycle 2012a). To do so, a landfill expansion is required. BCDC issued the required permit for this expansion, but it was overturned by Solano County Superior Court. As a result, it currently is uncertain whether the landfill will realize its full permitted capacity and continue to accept wastes until 2048.

Energy

Electricity

PG&E provides electricity to the RBC site. The company provides electric service to 5.1 million customers in a 70,000-square-mile service area in northern and central California. Electricity is generated from fossil fuels (natural gas and fuel oil), hydroelectric, nuclear, and solar (City of Richmond 2011).

Currently, the RBC site has an estimated peak power demand of about 500 kW and consumes approximately 3.7 million kWh annually. RBC site electricity is provided through multiple overhead 12-kv electrical lines. Aerial and underground power lines comprise the site's electrical service infrastructure.

Natural Gas

PG&E provides natural gas to the site. The company provides natural gas service to 4.2 million customers throughout its service area. The majority of PG&E's gas supply comes from northern California and other sources outside the service area (City of Richmond 2011).

Currently, the RBC site has an estimated peak gas demand of about 2,700 kBtu/h and consumes approximately 73,600 therms annually. RBC site natural gas is supplied through multiple high-pressure gas mains, with underground gas lines serving the larger site facilities.

4.14.3 Regulatory Considerations

Federal

Appropriate LBNL policies and procedures regarding utility use and consumption will be followed.

Energy Independence and Security Act

In 2007, EISA was signed into law. EISA aims to increase building, product, and vehicle efficiency; accelerate clean renewable fuel production; and institute other measures aimed at increasing U.S. energy independence and security.

Federal Facilities Compliance Act (Public Law 102-386)

This act generally waives sovereign immunity for Federal facilities, including the LBNL, from RCRA. It also requires development of plans and agreements with States for the management of mixed waste streams.

State

California Safe Drinking Water Act

This act established a state program and standards for public drinking water contaminant levels, regulates underground injection well use, and prescribes sole source aquifer standards. A public water system is defined as a system that regularly serves at least 25 persons and includes federal facilities that own or operate a public water system.

SB 610 and SB 221 – Water Supply Assessments

In 2001, the California Legislature passed Senate Bill 610 (Water Code Section 10910 et seq.) and Senate Bill 221 (Water Code Section 66473.7) to improve the link between information on water supply availability and certain land use decisions made by cities and counties. SB 610 and SB 221 were companion measures that sought to promote more collaborative planning between

local water suppliers and cities and counties. SB 610 and SB 221 are not applicable to University of California projects.

Assembly Bill 939

In 1989, Assembly Bill (AB 939) established the current organization, structure, and mission of the California Integrated Waste Management Board; directed attention to the increasing waste stream and decreasing landfill capacity; and mandated a reduction in disposed waste. It required jurisdictions to meet diversion goals of 25 percent by 1995 and 50 percent by 2000. Each city and county was required to submit a plan (Source Reduction and Recycling Element) describing how they would meet the waste reduction mandates. The University of California is not subject to this Act. The waste diversion goals were set at 75 percent by June 2012 and 100 percent by 2020.

California Universal Waste Law

This California Universal Waste Law went into effect in February 2006. Universal wastes include a wide variety of hazardous wastes such as batteries, fluorescent tubes, mercury-containing articles, aerosol cans, cathode ray tubes, and electronic devices that can be harmful to human and environmental health. Universal waste may not be discarded in solid waste landfills. Instead, it is recyclable and (to encourage recycling and recovery of valuable metals) can be managed under less stringent requirements than those that apply to other hazardous wastes.

California Government Code Section 54999

California Government Code Section 54999 provides for the University to pay fees to utility companies, under very limited circumstances, to defray the cost of utility capital improvements specifically intended to serve the University. An imposed capital facilities fee must be nondiscriminatory and must not exceed the actual amount necessary to provide utility benefits to the University.

California Building Code

Buildings constructed after June 30, 1977 must comply with the most recent California Code of Regulations Title 24 standards. Current Title 24 regulations are in the 2008 Building Energy Efficiency Standards. New 2013 Building Energy Efficiency Standards will become effective January 1, 2014. Title 24 requires state-of-the-art energy conservation features in building design and construction, use of non-depletable energy resources, or a demonstration that buildings would comply with a designated energy budget. Sustainability is a central 2014 LRDP element and the UC Sustainable Practices Policy requires that building renovations outperform by 20 percent the Title 24, Part 6 Building Energy Efficiency Standards.

Construction General Permit

Construction activity disturbing more than 1 acre of land is currently subject to an NPDES General Permit issued under Water Quality Order No. 2009-0009-DWQ. Permittees enrolled under this permit are required to file a notice of intent with the RWQCB and to develop and implement a SWPPP that includes BMPs. Permittees must perform seasonal monitoring of storm water discharges and submit annual reports until construction is completed. The intent of the General Permit program is to minimize erosion and sediment runoff as well as to prohibit the discharge of any pollutants in storm water runoff through the use of BMPs. Upon completion of construction, the General Permit is cancelled by filing a notice of termination.

California Model Water Efficient Landscape Ordinance

The Department of Water Resources prepared the model landscape ordinance, Title 23 Section 490. The model ordinance was adopted pursuant to AB 1881 Section 65597, the Water Conservation in Landscaping Act of 2006. Specific standards regarding water allowances as

well as methods to achieve water efficiency are detailed in the model ordinance. Local agencies were required to adopt the model ordinance or a local water efficient landscape ordinance by January 1, 2010.

Local

UC Sustainable Practices Policy

The UC Sustainable Practices Policy establishes goals in eight areas of sustainable practices: green building, clean energy, transportation, climate protection, sustainable operations, waste reduction and recycling, environmentally preferable purchasing, and sustainable foodservice. LBNL has its own sustainability policy and also follows the UC policy. The UC Sustainable Practices Policy is updated periodically. The most recent update, located at <http://sustainability.universityofcalifornia.edu/policy.html>, is from August 2011. The policy goals relevant to utilities and energy are:

Green Building Design

New Buildings

- All new building projects, other than acute care facilities, shall be designed, constructed, and commissioned to outperform the CBC energy-efficiency standards by at least 20 percent. The University will strive to design, construct, and commission buildings that outperform CBC energy efficiency standards by 30 percent or more, whenever possible within the constraints of program needs and standard budget parameters.
- All new buildings (except acute care facilities) will achieve a LEED Silver certification at a minimum. All new buildings (except acute care facilities) will strive to achieve certification at a LEED Gold rating or higher, whenever possible within the constraints of program needs and standard budget parameters.
- The University of California will design, construct, and commission new laboratory buildings to achieve a minimum of LEED Silver certification and meet at least the prerequisites of the Labs21 EPC. Design, construction, and commissioning processes shall strive to optimize the energy efficiency of systems not addressed by the CBC energy efficiency standards.
- All new building projects will achieve at least two points of the available credits in LEED-NC's Water Efficiency category.

Building Renovations

- Renovation of buildings that require 100 percent replacement of mechanical, electrical and plumbing systems and replacement of over 50 percent of all non-shell areas (interior walls, doors, floor coverings and ceiling systems) shall at a minimum comply with III.A.3 or III.A.4. Such projects shall outperform CBC Title 24, Part 6, currently in effect, by 20 percent.
- Renovation projects with a project cost of \$5 million or greater (CCCI 5000) that do not fall under item III.A.6 shall at a minimum achieve a LEED-CI Certified rating and register with the utilities' Savings by Design program, if eligible.

Clean Energy

- The University will reduce consumption of non-renewable energy by using a portfolio approach that includes a combination of energy efficiency projects, the incorporation of local renewable power measures for existing and new facilities, green power purchases from the electrical grid, and other energy measures with equivalent demonstrable effect on the environment and reduction in fossil fuel use.

Recycling and Waste Management

- The University prioritizes waste reduction in the following order: reduce, reuse, and recycle.
- The University adopts the following goals for diverting municipal solid waste from landfills:
 - 50 percent by June 30, 2008
 - 75 percent by June 30, 2012
 - Ultimate goal of zero waste by 2020

City of Richmond General Plan 2030

The RBC site is a University property where work within the University's mission is performed. As a state entity created by Article IX, Section 9 of the California State Constitution, the University is exempt under the state constitution from compliance with local land use regulations, including general plans and zoning. The University seeks to cooperate with local jurisdictions to reduce any physical consequences of potential land use conflicts to the extent feasible. The RBC is in the City of Richmond. The following sections summarize objectives and policies from the City of Richmond General Plan and local ordinances as they relate to water supply and distribution, wastewater treatment and conveyance, solid waste disposal, and energy demand and conveyance.

Community Facilities and Infrastructure

Goal CF1 Facilities that Serve a Diverse Range of Community Needs

Policy CF1.1 A Range of High-Quality Community Facilities and Infrastructure. Maintain high-quality facilities and infrastructure to serve diverse community needs.

Policy CF1.4 Concurrent Infrastructure Development. Require new development to provide proportionate facilities and infrastructure improvements as it occurs.

The 2030 General Plan EIR determined that the effects of the future development in the City under the General Plan on utilities, service systems, and energy would be significant and unavoidable. Wastewater systems impacts would be significant and unavoidable. Potable water system, solid waste, and energy (including electricity and natural gas) impacts would be less than significant. Cumulative impacts would be the same as project-level impacts.

4.14.4 Impacts and Mitigation Measures***Standards of Significance***

Project impacts on water supply and distribution, wastewater treatment and conveyance, solid waste disposal, and energy demand and conveyance would be considered significant if they would exceed the following Standards of Significance, in accordance with Appendix G of the *State CEQA Guidelines* and the UC CEQA Handbook:

Water Supply

- Require or result in the construction of new water treatment facilities or expansion of existing facilities that could cause significant environmental effects
- Result in the need for new or expanded water supply entitlements if there are not sufficient water supplies to serve the project from existing entitlements and resources

Wastewater

- Exceed wastewater treatment requirements of the applicable RWQCB
- Require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects
- Result in a determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments

Stormwater

- Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects

Solid Waste

- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs
- Fail to comply with applicable federal, State, and local statutes and regulations related to solid waste

Energy

- Require or result in the construction or expansion of electrical and natural gas facilities, that could cause significant environmental impacts
- Encourage the wasteful or inefficient use of energy

CEQA Checklist Items Adequately Addressed in the Initial Study

The Initial Study deferred analysis of the project's water supply and distribution, wastewater treatment and conveyance, solid waste disposal, and energy demand and conveyance impacts to this EIR. Therefore, all of the CEQA checklist items listed above are addressed in the analysis.

Analytical Methods

As a conceptual land use plan, the 2014 LRDP would help guide future physical development siting. The LRDP does not commit the LBNL or UC Berkeley to any specific projects or to grow to the maximum LRDP parameters. This EIR conservatively estimates the maximum LRDP growth and commensurate increases in utility demands. The analytical approach for each utility is addressed below.

Water Supply

Full 2014 LRDP development water demand is based on bioscience programs demand and consumption. The biosciences programs were chosen because they represent a reasonable mid-range consumption of utilities, chemicals, and usage of hazardous materials. The metered data was scaled down for variations in climate, improved building and system design, and consolidation of program functions. The resulting demand is then compared to available water supplies as reported in EBMUD's 2010 Urban Water Management Plan. EBMUD was contacted

to confirm that it would be able to supply the additional amount of water that the RBC would need at full 2014 LRDP development; according to the WSA, EBMUD will be able to serve the RBC under full 2014 LRDP development with its existing and planned water supply (EBMUD 2013).

Wastewater

Future wastewater from new 2014 LRDP development is calculated as 80 percent of total future potable water use. These estimated future flows are then compared to available wastewater treatment capacity. The analysis seeks to measure any future impacts to wastewater treatment capacity and to determine if new or expanded wastewater treatment facilities would be necessary.

Solid Waste

Solid waste quantities and types are determined by extrapolating current waste streams with increased future activities, space, and population. That estimated future waste stream is then compared to projected future landfill capacity. Results are then used to help determine whether the project would be underserved by existing landfills with insufficient permitted capacity; fail to comply with applicable federal, State, and local solid waste statutes and regulations; or hinder University or municipal compliance with applicable solid waste statutes.

Energy

Existing electrical and natural gas facilities and supplies are reviewed for future capacity. Energy demand is calculated by multiplying demand factors with estimated new population, facility space, land use area, and activities. Future energy provision capacity is compared to projected energy demand to help determine new or expanded electrical and natural gas facilities or sources.

The existing and projected RBC site utility demand is in Table 4.14-2.

RBC 2014 LRDP Policies

The RBC 2014 LRDP policies related to utilities, service systems, and energy include the following:

- UI1 – Utilities and Infrastructure Policy on Efficiency: Build a safe, efficient, cost-effective infrastructure.
 - Provide a safe and reliable utility infrastructure capable of supporting the research programs conducted on the campus.
 - Design infrastructure in a manner that can be phased over time and provide redundancy as needed.
 - Consolidate utility distribution into centralized corridors that primarily coincide with campus streets.
- UI2 – Utilities and Infrastructure Policy on Sustainability: Design infrastructure improvements to embody sustainable practices.
 - Design infrastructure to minimize energy use and maximize on-site renewable energy generation.
 - Plan infrastructure in a manner that promotes minimal use of potable water.
 - Explore and implement measures to use recycled gray or black water on-site for non-potable uses such as irrigation and toilet flushing.

- Maintain or restore, to the maximum extent technically and practically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of stormwater flow.
- Incorporate low impact development strategies in site planning to manage stormwater.
- Protect the campus development from 55 inches of sea level rise through the year 2100 using natural shore forms where practicable; and coordinate closely with the East Bay Regional Park District on maintaining the Bay Trail embankment.

LRDP Impacts and Mitigation Measures

Water Supply

LRDP Impact UTL-1: Development under the 2014 LRDP would not result in the need for new or expanded water supply entitlements. (*Less than Significant*)

The RBC site currently consumes approximately 11 mgy, or 30,000 gpd, of water, with an estimated maximum 50 gpm flow rate, as shown in Table 4.14-2. Potable water is used for various potable uses and irrigation. Following full development of the campus under the 2014 LRDP, the estimated annual water consumption would be about 340 mgy and the maximum flow rate would be 2,230 gpm. This represents a water usage increase of 329 mgy, or approximately 0.9 mgd, over existing conditions.

RBC landscape irrigation with recycled water is being explored in discussions with EBMUD. This would reduce the potable water estimated above. Consistent with UC Sustainable Practices Policy, all new building projects would achieve at least two points of the available credits in LEED-NC's Water Efficiency category; that would minimize water use. As required by EBMUD the landscape design would be designed to a water budget as described in the California Model Water Efficient Landscape Ordinance in Title 23 of the California Code of Regulations. The project would comply with EBMUD Water Service Regulation Section 31, Water Efficiency Requirements.

EBMUD is entitled to 325 mgd of water and its service area is projected to have a 230 mgd water demand in 2040, the closest EBMUD planning year to the 2014 LRDP's 2050 planning horizon (EBMUD 2011). Without conservation and recycled water, the EBMUD service area water demand in 2040 would be 312 mgd. RBC full development under the 2014 LRDP would add 0.9 mgd to the service area demand and increase total service area water demand to 231 mgd under the EBMUD conservation and recycled water scenario, and to 313 mgd under the non-conservation and recycling scenario. Both numbers are well below the EBMUD's total water entitlement.

Table 4.14-2
RBC Annual and Peak Utility Demand

Utility	Existing Demand	Projected Demand (2050)	Difference in Demand
Potable Water	11 mgy (peak demand – 50 gpm)	340 mgy (peak demand – 2,230 gpm)	329 mgy (peak demand – 2,180 gpm)
Firefighting Water	(peak demand – 3,000 gpm)	(peak demand – 6,000 gpm)	(peak demand – 3,000 gpm)
Wastewater	9.3 mgy (peak demand – 55 gpm)	273 mgy (peak demand – 2,140 gpm)	263.7 mgy (peak demand – 2,085 gpm)
Electrical energy	3,700 megawatt hours/year (peak demand – 500 kW)	142,400 megawatt hours/year (peak demand – 24.7 MW)	138,700 megawatt hours/year (peak demand – 24.2 MW)
Standby Power	peak demand – 400 kW (installed capacity – 3.9 MW)	peak demand – 16 MW (installed capacity – 20 MW)	peak demand – 15.6 MW (installed capacity – 16.1 MW)
Natural Gas	73,600 therms/year (peak demand – 2,700 kBtu/h)	6,600,000 therms/year (peak demand – 240,300 kBtu/h)	6,526,400 therms/year (peak demand – 237,600 kBtu/h)

Notes:

- 1 Wastewater was determined to be 80 percent of the potable water demand.
- 2 Wastewater flows cannot be netted out because the leased facilities do not all contribute their wastewater to the same wastewater treatment plant.

gpm Gallons per minute
 kBtu/h Kilo-British thermal unit hour
 kW Kilowatt
 Mgy Million gallons per year
 MW Megawatt
 NA Not Applicable

During normal rainfall years, EBMUD has adequate water supply to meet water demands, including the demand that would be added by RBC development. During drought periods the Mokelumne River would not meet the 325 mgd entitlement. The 2010 Urban Water Management Plan identified additional water sources, in addition to rationing, that could be available during drought years; these include supplemental supplies from the Freeport Regional Water Facility and the Bayside Groundwater Facility. In 2040 there would still be an EBMUD service area deficit of 73 mgd if there were three drought years in a row. Any additional deficit during dry years would be supplemented by short-term supply sources such as the Northern California Water Transfers and the Bayside Groundwater Project Expansion (EBMUD 2011).

EBMUD conducted a WSA of campus development under the proposed 2014 LRDP. According to the WSA, EBMUD will be able to serve the water demand associated with full development of the campus under the 2014 LRDP with its existing and planned water supply (EBMUD 2013). Full 2014 LRDP campus development would increase the daily water demand from EBMUD. However, the increase would be relatively small and would be served by existing water entitlements. It would be further minimized by RBC conservation measures. EBMUD may investigate expanding the existing recycled water infrastructure or constructing a localized

satellite facility to provide recycled water to the RBC site to further reduce potable water use. The impact would be less than significant.

Mitigation Measure: No mitigation measure is required.

LRDP Impact UTL-2: **Development under the 2014 LRDP would not require or result in new or expanded water treatment facilities. (*Less than Significant*)**

EBMUD water supplied to the RBC is treated at the Sobrante or the Orinda WTPs. Campus development would result in a net water demand increase of approximately 0.9 mgd. EBMUD would be able to serve the campus with its existing supplies for which there are currently adequate water treatment facilities (EBMUD 2013). Therefore, 2014 LRDP development would not require or result in the construction or expansion of water treatment facilities; this impact would be less than significant.

Mitigation Measure: No mitigation measure is required.

LRDP Impact UTL-3: **Development under the 2014 LRDP would require the construction of new or expanded water delivery systems. The construction of new or expanded water delivery systems would not result in significant environmental effects. (*Less than Significant*)**

The RBC site is currently served by three 8-inch laterals, each connected to 12-inch EBMUD water mains at South 46th Street, Regatta Boulevard and South 32nd Street, and Regatta Boulevard and South 34th Street. Full 2014 LRDP campus development would require that these 8-inch laterals be upgraded to 12-inch laterals, and that they be supplemented and cross-connected by a 12-inch RBC fire water distribution system. This would ensure adequate future delivery of potable and fire water. The underground distribution system would include piping, sectionalizing valves, back-flow preventers, and pressure reducers generally in utility corridors defined in the 2014 LRDP. Each new facility would include an isolation valve and meter at the building's service entry point. The potential environmental effects associated with upgrading and expanding the RBC site water delivery systems are evaluated in Sections 4.1 through 4.13. As indicated by the analysis in these sections, the impacts will be less than significant or will be reduced to less than significant with mitigation. The analysis in LRDP Impact CR-3 in Section 4.4, Cultural Resources, concludes a significant and unavoidable impact. However the future water conveyance systems would not require demolition of a historic building. Although there would be other significant and unavoidable impacts of LRDP development related to operational criteria pollutant and toxic air contaminant emissions, operational GHG emissions, and traffic, due to the nature of infrastructure upgrades and expansion, these improvements would not cause or contribute to these significant and unavoidable impacts.

EBMUD has indicated that improvements to off-site water mains may be necessary to serve the campus development. To the extent that any improvements to off-site water mains are needed, the construction of these improvements is not expected to result in significant environmental impacts. Due to the nature of infrastructure projects (i.e., underground pipelines placed in existing right-of-way underneath city streets), potential impacts are expected to be less than significant or if potentially significant, mitigable to a less than significant level.

Therefore, the environmental impacts from potentially constructing or expanding on- and off-campus water conveyance infrastructure would be less than significant.

Mitigation Measure: No mitigation measure is required.

Wastewater

LRDP Impact UTL-4: **Development under the 2014 LRDP would require the construction of new or expanded wastewater treatment facilities. (Potentially Significant; Less than Significant with Mitigation)**

Currently, the RBC site generates 9.3 mgd, or 25,479 gallons per day (gpd), of wastewater that is discharged into the City's sewer system for treatment at the RMSD WWTP. This wastewater would increase to an estimated 273 mgd or 747,945 gpd at full 2014 LRDP development. This represents an increase of 263.7 mgd or 722,466 gpd (0.7 mgd) of wastewater over existing conditions, as shown in Table 4.14-2.

The current RMSD WWTP dry-weather secondary treatment capacity is 24 mgd and dry weather influent flows are approximately 7 mgd. If projected 2014 LRDP campus wastewater flows of 0.7 mgd were added to the current influent flows of 7 mgd, the total influent would still be substantially below the WWTP's 24 mgd dry-weather treatment capacity. Incremental RBC flows would take up only 3 percent of the WWTP's dry-weather treatment capacity. Therefore, by itself, the proposed project would not require the construction of new or expanded wastewater treatment facilities. For the combined effect of the proposed project in conjunction with other reasonably foreseeable future development on wastewater treatment capacity, see Cumulative Impact UTL-1 below.

The current RMSD WWTP wet weather primary treatment capacity is 40 mgd and wet weather flows peak at 56 mgd due to infiltration and inflow (I&I). Inflow is stormwater that enters into the sanitary sewer systems at system connection points and infiltration is groundwater that enters sanitary sewer systems through pipe and joint cracks or leaks. Peak wet weather flows exceed the primary treatment capacity of 40 mgd by approximately 16 mgd, or 40 percent. I&I accounts for the drastic increase in peak flows to the RMSD WWTP during wet weather events. The proposed project would not increase I&I discharges to the RMSD WWTP as its infrastructure would be new and not subject to I&I problems.

Furthermore, the City of Richmond has commenced efforts to address the wet weather problem at the RMSD WWTP. In 2011, the City of Richmond prepared and adopted the Sewer Collection System Master Plan, which concluded that a 10-year, 24-hour storm could produce a peak flow of 67 mgd (Veolia Water 2011). As stated above, the current wet weather primary treatment capacity is 40 mgd. Therefore, during the specified storm, there would be an excess of 27 mgd of wastewater above treatment capacity. The City of Richmond is currently in the process of constructing storage facilities for the excess wet weather flows. The wet weather storage basin project has not begun construction but is expected to be completed in late 2014. The project would temporarily store the excess flow of up to 27 mgd in storage basins and then return the flow to the WWTP for treatment after the peak flows have subsided. When finished, this project would prevent overflows from overflow structures to Richmond Harbor during storm events but it would not eliminate sewer system overflows from other upper reaches of the sewer system. Based on the project's current schedule, the wet weather storage basin project would be completed before any new wastewater is generated at the RBC site and the impact related to excessive flows beyond wet weather treatment capacity would not occur. However, should that project be delayed and new buildings are constructed and occupied on the campus that generated new wastewater flows, campus development could potentially result in a significant impact related to wastewater. In addition, until such time that all I&I flows are eliminated from the sewer mains between the

RBC site and the RMSD WWTP, new wastewater generated by campus development could potentially contribute to localized system overflows and result in a potentially significant impact.

In summary, 2014 LRDP campus development would not have a significant effect on wastewater treatment capacity during dry weather conditions. During wet weather conditions, RBC development would not contribute to I&I flows but if the completion of wet weather storage facilities is delayed, RBC development could potentially add flows to a WWTP that is operating over capacity during wet weather. In addition, it could add wastewater flows to sewer mains that are at capacity due to I&I and result in localized system overflows. To address this potentially significant impact, Mitigation Measure LRDP CUM UTL-4 is proposed. With mitigation, the impact would be less than significant. In addition, Government Code Section 54999 authorizes public utilities to charge the University a limited capital facilities fee under certain circumstances (i.e., a non-discriminatory charge to defray the actual cost of that portion of a public utilities facility actually serving the University). If there are any costs incurred by the City of Richmond associated with providing wastewater facilities to serve the campus, the University would be expected to comply as authorized under Section 54999.

LRDP MM UTL-4: When a project under the 2014 LRDP is proposed that would increase wastewater flows discharged from the RBC site, the University shall work with the City of Richmond to evaluate the impact of the specific project on both the sewer mains and at the RMSD WWTP, and if necessary based on the results of the evaluation, the University will compensate the City for the cost of implementing improvements such as slip-lining sewer pipelines downstream of the project site to reduce I&I flows volumes equivalent to or greater than the incremental volume of wastewater generated by the project, or if necessary would construct underground vaults on the RBC site to detain wastewater to reduce peak flows to sewer mains during wet weather.

LRDP Impact UTL-5: **Development under the 2014 LRDP would require the construction of new or expanded wastewater conveyance systems. The construction of new or expanded wastewater conveyance systems would not result in significant environmental effects. (*Less than Significant*)**

Full 2014 LRDP campus development would produce 263.7 mgd or 0.7 mgd of wastewater over current flows, as shown in Table 4.14-2. The current RBC site wastewater conveyance system is not adequate to collect future campus wastewater flows, so additional sewer lines would be needed to connect to the main sewer line at the south end of the developed uplands area. The potential environmental effects of expanding or providing new RBC site wastewater conveyance systems are evaluated in Sections 4.1 through 4.13. As indicated by the analysis in these sections, the impacts will be less than significant or will be reduced to less than significant with mitigation. Although the analysis in LRDP Impact CR-3 in Section 4.4, Cultural Resources, concludes a significant and unavoidable impact related to demolition of historic structures, the future wastewater conveyance systems would not require demolition of a historic building. While there would be other significant and unavoidable impacts of LRDP development related to operational criteria pollutant and toxic air contaminant emissions, operational GHG emissions, and traffic, due to the nature of infrastructure upgrades and expansion, these improvements would not cause or contribute to these significant and unavoidable impacts.

It is not known if and when any improvements to off-site wastewater mains would be needed. RBC wastewater flows would continue to be monitored by LBNL/UC Berkeley and the City of Richmond to determine when off-site improvements are necessary. If improvements to the off-site wastewater mains are needed, their construction is not expected to result in significant environmental impacts. Due to the nature of infrastructure projects (i.e., underground pipelines installed in existing right-of-way under City streets), potential impacts are expected to be less than significant or if potentially significant, mitigable to a less than significant level. If there are any costs incurred by the City of Richmond associated with the provision of wastewater facilities to serve the campus, the University would comply as authorized under Government Code Section 54999.

Therefore the environmental impacts from the construction or expansion of wastewater conveyance facilities on- and off-campus would be less than significant.

Mitigation Measure: No mitigation measure is required.

Stormwater

LRDP Impact UTL-6: Development under the 2014 LRDP would require the construction of new or expanded stormwater drainage facilities. The construction of new or expanded stormwater drainage facilities would not result in significant environmental effects. (*Less than Significant*)

2014 LRDP campus development would result in the construction of 5.4 million gsf of building space and parking structures. Because much of the new construction and development would take place on currently disturbed and developed surfaces, impervious surfaces on the campus would not increase substantially over existing conditions. As discussed in Chapter 2, RBC site surface area is currently about 42 percent impervious and 58 percent pervious. With full 2014 LRDP development, the RBC would likely comprise about 43 percent impervious and 57 percent pervious surfaces. The increase in impervious surfaces would be relatively small (about 3 acres). Reductions in stormwater runoff would be achieved through the incorporation of LID design techniques consistent with NPDES requirements, the UC Sustainable Practices Policy, and LRDP goals that the site model sustainability.

The State Water Resources Control Board would require a project Construction General Permit to minimize erosion and sediment runoff as well as to prohibit the discharge of any pollutants in storm water runoff through the use of BMPs. The Construction General Permit applies to construction projects disturbing 1 or more acres; it requires all such dischargers to develop and implement a SWPPP. The SWPPP specifies BMPs to prevent construction pollutants from contacting stormwater, control off-site delivery of sediment and other construction-related pollutants, eliminate or reduce non-stormwater discharges to storm sewer systems and other jurisdictional waters, and inspect and monitor the success of all BMPs.

EISA Section 438 poses new requirements for stormwater runoff reduction for federally funded development projects. There are a variety of stormwater management design practices that can be used to meet the requirements including rain gardens, porous pavements, vegetated swales, and bioswales.

Future RBC site runoff is expected to decrease due to the LID and the sustainable design of the new campus. As portions of the RBC site are developed or redeveloped, new on-site stormwater drainage systems would be constructed. On-site stormwater drainage patterns would remain largely

unchanged: the RFS portion would continue draining to Meeker Slough and the Regatta portion would continue draining into the City storm drain system. The potential environmental effects associated with constructing new on-site stormwater drainage systems are evaluated in Sections 4.1 through 4.13. As indicated by the analysis in these sections, the impacts will be less than significant or will be reduced to less than significant with mitigation. Although the analysis in LRDP Impact CR-3 in Section 4.4, Cultural Resources, concludes a significant and unavoidable impact, the future storm drain systems would not require demolition of a historic building. While there would be other significant and unavoidable impacts of LRDP development related to operational criteria pollutant and toxic air contaminant emissions, operational GHG emissions, and traffic, due to the nature of storm drain systems, these improvements would not cause or contribute to these significant and unavoidable impacts. The NPDES permit for construction requires that stormwater runoff be the same or less than runoff under existing conditions. No changes to off-site storm drain systems are anticipated because the campus drainage patterns and volumes would remain substantially unchanged. Therefore, the environmental impacts from on-site stormwater drainage facilities construction would be less than significant.

Mitigation Measure: No mitigation measure is required.

Solid Waste

LRDP Impact UTL-7: **Development under the 2014 LRDP would generate solid waste, but not enough to require new or expanded permitted landfill capacity. (*Less than Significant*)**

Construction and Demolition

The 2014 LRDP campus would generate construction and demolition waste and debris as long as new development and renovation were to continue. The waste would be disposed of at the primary regional landfill serving the site, Potrero Hills Landfill. Additional landfills listed in Table 4.14-1, are also used by the WCCIWMA to dispose of waste. The Potrero Hills Landfill has a permitted daily intake limit—the maximum amount of waste that can be accepted at the landfill in one day—of 4,330 tons.

As reported in Chapter 2, demolition waste is estimated to be approximately 125 pounds per square foot of demolition. Construction waste is estimated at approximately 3.9 pounds per square foot of construction (EPA 1998). Without taking into account recycling, demolition of 750,000 square feet of existing buildings and construction of 5.1 million square feet of buildings on the RBC site would result in 56,825 tons of construction and demolition debris over the approximately 40 year planning period. Table 4.14-3 shows that amount of demolition and construction waste averaged over the 40 year planning period; it also shows the estimated peak debris amount that could be produced in any one year. Using these numbers, the average daily construction/demolition disposal requirement is estimated to be 5.5 tons. During a peak year of construction and demolition, the average daily volume is estimated to be 72.9 tons. These daily volumes were compared to the Potrero Hills Landfill's permitted daily intake limit of 4,330 tons. The comparison shows that campus demolition and construction waste requiring landfill disposal would represent between 0.12 and 1.7 percent of the permitted daily intake limit at the Potrero Hills Landfill. As needed, other landfills would be used to dispose of waste that would reduce the impact on the Potrero Hills Landfill.

**Table 4.14-3
Demolition and Construction Waste Generated by the 2014 LRDP**

Type of Activity	Anticipated Site-wide Average Annual Waste	Anticipated Site-wide Average Daily Waste^a	Percent of Total Permitted Daily Intake^b	Anticipated Peak Waste in One Year	Anticipated Peak Waste in Per Day^a	Percent of Total Permitted Daily Intake^b
Demolition (125 lbs/sf)	1,172 tons	4.5 tons	0.1%	15,625 tons	60.1 tons	1.4%
Construction (3.9 lbs/sf)	249 tons	1.0 ton	0.02%	3,315 tons	12.8 tons	0.3%
Total	1,421 tons	5.5 tons	0.12%	18,940 tons	72.9 tons	1.7%

Notes:

a Assuming waste is produced during the workweek only, 260 days a year.

b Assuming the Potrero Hills Landfill is open to receive waste only during weekdays, 260 days a year.

lbs/sf Pounds per square foot

Based on current UC Sustainability Practices Policy, a minimum of 75 percent of the construction waste would be diverted. The analysis above describes the worst case scenario of debris produced and transported to the landfill. Therefore, substantially less waste debris would be generated by RBC site construction and demolition.

As campus development construction and demolition debris would not result in an exceedance of the Potrero Hills Landfill's daily intake limit, construction related impacts to solid waste facilities would be less than significant. Implementation of LRDP ENVIRONMENTAL PROTECTION PRACTICE UTL-7 would further reduce this impact.

Operation

2014 LRDP development would increase RBC site population up to an additional 9,700 people who would operate and maintain the campus. This activity level would generate up to 21.3 tons of waste per day,³⁷ or 7,775 tons per year (CalRecycle 2012b). As the campus would comply with the UC Sustainable Practices Policy that requires UC facilities to attain a goal of 75 percent diversion by 2012 and a zero waste goal by 2020, the waste volume requiring landfill disposal would be considerably less than that estimated amount.

The Potrero Hills Landfill has a permitted daily intake limit of 4,330 tons. The increased RBC waste volume is projected to be less than 0.5 percent of the permitted daily intake limit. The WCCIWMA does deliver waste as needed to other landfills, listed in Table 4.14-1, which would further reduce the impact to any single landfill. Daily RBC waste volumes would not require expansion of regional landfills. Therefore, the 2014 LRDP development impact on regional landfills would be less than significant.

LRDP ENVIRONMENTAL PROTECTION PRACTICE UTL-7:

LBNL and UC Berkeley shall develop and implement a plan to maximize diversion of construction and demolition materials from landfill disposal. The plan would set a goal of a minimum of 75 percent diversion, consistent with the UC Sustainable Practices Policy.

³⁷ Based on the waste generation rate of 0.8 tons/employee/year from CalRecycle for "Services – Education."

LRDP Impact UTL-8: Development under the 2014 LRDP would comply with all applicable federal, State, and local statutes and regulations related to solid waste. (*Less than Significant*)

The University of California is not subject to AB 939. However, the University does reduce the amount of waste materials sent to landfills to the greatest extent possible. The RBC would comply with UC Sustainable Practices Policy that requires all University operations to prioritize waste reduction in the following order: reduce, reuse, then recycle. The University adopted a goal of zero waste by 2020. 2014 LRDP campus development would not violate any applicable state or federal statutes and would result in a less than significant impact.

Mitigation Measure: No mitigation measure is required.

Energy

LRDP Impact UTL-9: Development under the 2014 LRDP would require the construction of new or expanded electrical distribution facilities. The construction of new or expanded electrical distribution facilities would not result in significant environmental effects. (*Less than Significant*)

All RBC development would comply with the UC Sustainable Practices Policy. The Policy's green building goals stipulate that all new building projects, other than acute care facilities, shall be designed, constructed, and commissioned to outperform the CBC energy-efficiency standards by at least 20 percent; that all new buildings (except acute care facilities) will achieve at minimum a LEED Gold certification; and that the University will design, construct, and commission new laboratory buildings to achieve a minimum of LEED Gold certification and meet at least the prerequisites of the Labs21 EPC. All of these measures would minimize RBC site energy use.

Full campus development under the 2014 LRDP would result in a peak power demand of about 25 MW and would consume approximately 142,400 MWh annually, as shown in Table 4.14-2. The net electricity demand, factoring in the current energy use of the existing facilities on the RFS site, would be 138,700 MWh per year. Campus development would require on-site construction of 115 kv lines and a 115:12 kv substation that would supply a 12 kv distribution system. The substation would be built near the junction of Regatta Boulevard and 34th Street. The underground distribution system would include ductbanks, manholes, sectionalizing switches, and additional safety equipment generally in defined utility corridors. Each new facility would include transformers, switchgear, and a standby electrical generator with required capacity.

The potential environmental effects associated with upgrading and expanding the RBC site electrical power infrastructure are evaluated in Sections 4.1 through 4.13. As indicated by the analysis in these sections, the impacts will be less than significant or will be reduced to less than significant with mitigation. Although the analysis in LRDP Impact CR-3 in Section 4.4, Cultural Resources, concludes a significant and unavoidable impact, the future electrical power infrastructure development would not require demolition of a historic building. While there would be other significant and unavoidable impacts of LRDP development related to operational criteria pollutant and toxic air contaminant emissions, operational GHG emissions, and traffic, due to the nature of infrastructure upgrades and expansion, these improvements would not cause or contribute to these significant and unavoidable impacts.

No improvements to the off-site electrical infrastructure are anticipated. If improvements to off-site distribution lines are needed to serve the expanded campus, PG&E would evaluate the likely effects of these improvements and provide mitigation, as appropriate, for any significant environmental impacts.

Mitigation Measure: No mitigation measure is required.

LRDP Impact UTL-10: **Development under the 2014 LRDP would require the construction of new or expanded natural gas distribution facilities. The construction of new or expanded natural gas distribution facilities would not result in significant environmental effects. (*Less than Significant*)**

Campus development under the 2014 LRDP would result in a peak demand of about 240,300 kBtu/h and would annually consume approximately 6,600,000 therms of natural gas, as shown in Table 4.14-2. The net natural gas demand, factoring in the current energy use of the existing facilities on the RFS site, would be 6,526,400 therms/year. Natural gas would be provided to the campus by PG&E. To meet the demand, a new 8-inch gas pipeline would be installed in the eastern RBC site with three 5- or 6-inch laterals branching off of the main line to serve different clusters of facilities. A new 6-inch gas pipeline would be installed to serve development on the RBC's western portion. The underground distribution system would include piping, sectionalizing valves, and additional safety equipment generally in defined utility corridors. Each point of connection to PG&E would include new pressure reducers, meters, vaults, and safety equipment.

The potential environmental effects associated with upgrading and expanding the natural gas infrastructure are evaluated in Sections 4.1 through 4.13. As indicated by the analysis in these sections, the impacts will be less than significant or will be reduced to less than significant with mitigation. Although the analysis in LRDP Impact CR-3 in Section 4.4, Cultural Resources, concludes a significant and unavoidable impact, the future natural gas infrastructure development would not require demolition of a historic building. While there would be other significant and unavoidable impacts of LRDP development related to operational criteria pollutant and toxic air contaminant emissions, operational GHG emissions, and traffic, due to the nature of infrastructure upgrades and expansion, the impacts would not be significant and unavoidable.

No improvements to the off-site natural gas infrastructure are anticipated. If improvements to off-site distribution lines are needed to serve the expanded campus, PG&E would evaluate environmental impacts and, if appropriate, identify or provide any needed mitigation.

Mitigation Measure: No mitigation measure is required.

LRDP Impact UTL-11: **Development under the 2014 LRDP would not result in the wasteful, inefficient, or unnecessary energy use. (*Less than Significant*)**

Campus development under the 2014 LRDP would meet or exceed sustainability goals, including UC Sustainable Practices policies regarding green building, clean energy, and sustainable operations. The construction and renovation of facilities, and their operation and maintenance, would incorporate energy-efficient practices to reduce electricity and natural gas demand where possible. Any facility, such as a laboratory or data center, not required to meet code requirements for energy consumption would be designed to meet specific energy and carbon performance metrics, such as those defined by the Labs21. Laboratories for the 21st Century (Labs21) is a

voluntary partnership program cosponsored by EPA and DOE. LBNL is not required to participate in the Labs21 but could use the guidance to improve energy efficiency and environmental performance. RBC facility construction and operation would ensure that electricity and natural gas is used efficiently, so campus development under the 2014 LRDP would not result in the wasteful, inefficient, or unnecessary use of energy.

Mitigation Measure: No mitigation measure is required.

Cumulative Impacts and Mitigation Measures

Cumulative Impact UTL-1: **Development under the 2014 LRDP, in conjunction with other regional growth, could increase the demand for utilities, service systems, and energy, the construction of which may result in significant environmental impacts. (Potentially Significant; Less than Significant with Mitigation)**

As discussed above, with mitigation, campus development under the 2014 LRDP would not result in significant impacts on utilities and service systems. However, RBC development, in conjunction with reasonably foreseeable development in the City of Richmond and in nearby communities, could result in significant increases in demand for utilities and energy. The potential for significant cumulative impacts on utilities is discussed below.

Water Supply

EBMUD has indicated that the project site and its associated water demand are accounted for in the 2010 Urban Water Management Plan cumulative demand projections through 2040. Therefore, cumulative development, including the proposed project, would not result in the need for new, currently unplanned water supply facilities. There would be no significant environmental impacts from the development of new water supply facilities.

Wastewater

As analyzed above under the LRDP Impact UTL-4 analysis, the RSMD WWTP has enough wastewater treatment capacity to accommodate current and future dry weather flows, including under RBC development conditions. Wastewater service is provided on a first-come first-serve basis. During the 40-year campus development period, some of the available WWTP dry weather capacity may be taken up by other future development in the area. The proposed LRDP includes sustainability goals to minimize RBC water demand and wastewater; this would minimize the project's contribution to cumulative impacts. As a result of cumulative growth including the RBC project, some utility system improvements—especially to wastewater treatment capacity—could be necessary. The Richmond General Plan 2030 identifies the need for increased wastewater capacity by 2040 to accommodate projected dry weather wastewater flows. This would be addressed by constructing new wastewater facilities or expanding existing facilities. The Richmond General Plan EIR notes that because the specific nature of the needed improvements is not currently known, the types and significance of environmental impacts from WWTP improvements cannot be determined, so it conservatively finds that the impact would be significant and unavoidable.

In addition, as discussed for LRDP Impact UTL-4, due to I&I, wet weather flows exceed the WWTP's current wet weather treatment capacity. Because the campus would develop new on-site wastewater conveyance systems, it would not create new sources of I&I intrusion. However, project wastewater could contribute to WWTP capacity exceedances when added to regional, I&I-influenced wet weather flows and could contribute to localized sewer main overflows caused by I&I. To address this existing problem, the City of Richmond/Veolia Collection Systems

Master Plan has identified capacity improvement projects that would install larger diameter pipelines, parallel relief sewers, and wet weather storage. The cumulative impact related to sewer overflows into the harbor or in city streets is anticipated to be resolved by the City's actions of constructing wet weather storage facilities as well as making other improvements such as slip lining existing sewers and constructing relief sewers. When proposing future WWTP improvements or improvements to sewer mains and relief sewers, the City would presumably evaluate such projects for environmental impacts and mitigate as appropriate for potentially significant impacts. To the extent that the RBC would contribute to these impacts, pursuant to LRDP CUM MM UTL-1, the University would contribute its proportional share of the cost of environmental mitigation. Therefore, with mitigation, the contribution of the proposed LRDP to the cumulative impact related to wastewater treatment capacity improvements or improvements to sewer mains and relief sewers would not be cumulatively considerable.

Although CEQA does not consider a proposed project's fiscal impacts, Government Code Section 54999 authorizes public utilities to charge the University a limited capital facilities fee under certain circumstances (i.e., a non-discriminatory charge to defray the proportional cost of that public utility improvement directly benefiting the University). If the City incurs costs associated with wastewater facility improvements to serve the RBC, the University would defray appropriate costs as required by Section 54999. Capital facilities fees would compensate the utility provider for utility system improvement costs.

Energy

The proposed project, in conjunction with other foreseeable development in the surrounding area, would cumulatively contribute to electricity and natural gas demand increases. New development would occur in a largely built-out urban area served by existing utilities and service systems. These cumulative increases in demand would be individually addressed through appropriate CEQA review and by service provider assessments prior to new specific development approvals. The incremental 2014 LRDP increases in electricity and natural gas demand would not be substantial relative to overall service area demand; furthermore, existing utility delivery systems are expected to handle proposed RBC growth.

This far in advance, it is speculative whether cumulative development would trigger construction of new electricity generation facilities. Neither can any new generation facilities nor their potential environmental construction and operational impacts be known at this time. Before any new production and transmission facilities are approved for development, PG&E would analyze construction and operations and mitigate as appropriate any potentially significant impacts. Therefore, the cumulative electricity production and transmission facilities impact is not considered further in this Draft EIR. The 2014 LRDP includes sustainability goals to substantially minimize the Campus's energy use. The extensive programs focused on demand reduction would further minimize the project's cumulative impacts contribution.

Solid Waste

Cumulative City of Richmond development would produce additional quantities of solid waste, depending on net increases in population, building space, use intensity, and construction and demolition debris. This development would contribute to regional solid waste disposal and landfill capacity demands. There are 15 landfills available to serve the area, listed in Table 4.14-1, with a remaining aggregate capacity of 352,407,341 cubic yards.

The 2014 LRDP campus operations would generate an estimated 7,775 tons of solid waste per year. For the early years of campus development, about 75 percent of that solid waste would be recycled; with increased waste diversion in later years, that recycling percentage would grow. Considering the existing capacity in the disposal and recycling system and the extent of campus

efforts to decrease solid waste generation, the project contribution to this impact would not be cumulatively considerable.

Through City and private sector efforts, numerous source reduction, recycling, composting, and reuse programs have been implemented in the City of Richmond. These programs have increased waste diversion in City government and in the residential and commercial/industrial sectors. The City is currently diverting 50 percent of its solid waste. Given the City's record up to now, cumulative development in the City of Richmond would not hamper the City's ability to reach its waste diversion goals. The RBC would achieve a minimum 75 percent diversion rate with incorporation of solid waste diversion into campus practices. As all municipal jurisdictions are expected to meet the state-mandated diversion requirements and because the RBC would voluntarily reduce its solid waste for landfill disposal, there would not be a cumulative impact.

LRDP CUM MM UTL-1: The University will pay its proportional share of the environmental mitigation measures costs associated with required wastewater service improvements.

4.14.5 References

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